80 Long term effects of azithromycin maintenance treatment on lung function in pediatric cystic fibrosis patients chronically infected with *Pseudomonas aeruginosa*

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Objectives: To evaluate the long term effects of azithromycin on lung function and compare these results to a non-pseudomonas colonized cohort.
Methods: We included 74 cystic fibrosis patients, treated at the CF centre of the University Medical Centre Utrecht, who were chronically infected with *P. aeruginosa* and who started azithromycin maintenance treatment between 1998 and 2005. We analysed decline in forced expiratory volume in 1 second percentage of predicted (FEV1%) before and after start of azithromycin treatment, using linear mixed effects models. We also compared FEV1% decline in our study group with a non-pseudomonas colonized cohort, not treated with azithromycin maintenance therapy (n = 60).
Conclusion: Initiation of azithromycin therapy is associated with a temporary improvement of lung function. After the first year patients with *P. aeruginosa* and azithromycin have lung function decline comparable to patients without *P. aeruginosa* and azithromycin.

81 A UK survey of anti-staphylococcal antibiotic prophylaxis (ASAP) for cystic fibrosis patients

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Cystic fibrosis (CF) patients are vulnerable to *Staphylococcus aureus* airway infection. There is international debate about the use of long-term antistaphylococcal antibiotic prophylaxis (ASAP). The aim of this study was to examine the use of ASAP in UK CF units. An online questionnaire was used to collect data on drug regimens, age range, complications, palatability, and issues of compliance.
Results: 173 centres were contacted and 133 (77%) responded, representing approximately 8700 patients. 95/103 (92%) paediatric units and 15/30 (50%) of adult units were using ASAP. 85 (89%) paediatric units used flucloxacillin; 10 used a trimethoprim-based regimen. Of those using flucloxacillin, 68 (80%) follow the UK CF Trust dosing guidelines, with other units modifying the guidelines for local needs. All adult units used flucloxacillin. Age ranges were highly variable; in paediatric units, 46% used ASAP from diagnosis to transition, 31% from diagnosis to 2 years (with other practices reported). ASAP was well tolerated, with low complication rates. Most paediatric units experienced no complications (71%), but 9% report gastrointestinal symptoms. 28% of respondents reported compliance issues and 74% reported difficulty with palatability, many relating to preparation brand.
Conclusion: Most paediatric and a significant number of adult CF units in the UK use ASAP, but there is considerable variation in practice. A definitive and pragmatic RCT is needed to guide practice.

82 Secondary prophylactic antibiotics against *Staphylococcus aureus* (Sa) during the winter months in children with cystic fibrosis

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Background: The role of prophylactic anti-staphylococcal antibiotics in CF is not well defined.
Objectives: To evaluate the effect of secondary prophylactic antibiotics in chronic colonization by Sa in CF during the winter months.
Setting: A prospective, monocentric study conducted at Bordeaux University Hospital.
Methods: Children chronically colonized with Sa for more than 6 months were included. They received continuous oral antibiotics (cotrimoxazole, rifampicin, oxacillin, pristinamicin, amoxicillin and clavulanic acid or minocycline) according to the antibiogram, alternating every 10 days for 3 months. Clinical, bacteriological (sputum or throat swabs) and LFT evaluation performed prior to and at the end the treatment period.
Results: 32 children were included, median age 9.2 years [0.8–16.4]. We observed a significant decrease in Sa Colony Forming Unit (CFU) (7 [2–9]/5 [0–8], p = 0.02). Sa was eradicated in 43% (12/28) of all cases, and in 100% (2/2) of meticillin-resistant Sa (MRSA). No emergence of bacteriological resistance, new colonisation by *P. aeruginosa* or other pathogens were noted. FEV1 increased after treatment (89.5±20.3% vs 92.3±15.8%, p = 0.6), especially in patients with an initial FEV1 less than 90% (p < 0.01). No patient presented with a pulmonary exacerbation during the study period. The antibiotics were well tolerated, with weight gain and good appetite.
Conclusion: Secondary prophylactic antibiotics directed against Sa during winter significantly reduces sputum Sa density, and improves pulmonary symptoms and function. MRSA was eradicated in 100% of cases.

83 Investigation of RND efflux pumps in clinical *Prevotella* species isolated from CF patients

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Objectives: Anaerobic *Prevotella* species, detected in the CF lung, have demonstrated resistance to several antibiotics. Other gram negative bacteria, such as *P. aeruginosa*, possess efflux pumps of the Resistance Nodulation Division (RND) family, which contribute to antibiotic resistance. However, for *Prevotella* species, no such pumps have yet been described. Our Aim is to determine if clinical *Prevotella* isolates possess RND efflux pumps which contribute to antibiotic resistance.
Methods: Available genomes were searched for the presence of RND efflux pumps. *Prevotella* isolates from CF patients (57 isolates), non-CF patients (14), healthy controls (10) and type strains (2) were screened for the presence of efflux pumps by PCR.
Results: Homology searching revealed the presence of either 1 (*P. denticola, P. nigrescens*) or 2 (*P. melaninogenica, P. histicola, P. veroralis, P. salivae*) RND efflux pumps within *Prevotella* genomes. With the exception of 2 *P. melaninogenica* isolates, all isolates contained at least one RND efflux pump in their genome. Ongoing susceptibility testing (E-test) in the presence and absence of an efflux pump inhibitor (Phe-Arg β-napthylamide 2HCl) has shown a decrease in tetracycline MIC from 32 μg/ml to 24 μg/ml for one CF *P. salivae* isolate when pump activity was blocked.
Conclusion: RND efflux pumps are present in *Prevotella* isolates from CF patients. Further characterisation of these pumps is ongoing to determine their importance with respect to antibiotic resistance in *Prevotella*.
This work is supported by HSC Research and Development, Public Health Agency, Northern Ireland and by the Medical Research Council through a US-Ireland Partnership Grant.